



The study limitations include the retrospective nature of the study design. Investigations regarding the cause of the allergy were insufficient in some cases. Nevertheless, this study showed that the age-adjusted incidence was greater than that identified in previous reports, most likely due to the significantly higher incidence of ingested fish-related allergies related to *Anisakis* in the Awa region.

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CONFLICTS OF INTEREST

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SUPPORTING INFORMATION

Additional supporting information may be found online in the Supporting Information section at the end of the article.

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Severe asthma, biologicals, and auto-injection: Yes, no, may be!

To the Editor,

WHO defines empowerment as “a process through which people gain greater control over decisions and actions affecting their health” and should be seen as both an individual and a community-based process.¹ The main components reported as essential into the process of patients' empowerment are principally the following: (a) understanding

by the patient of his/her role; (b) acquisition by patients of a sufficient knowledge of the disease(s) to actively cooperate with their healthcare provider; (c) patient skills; and (d) the presence of a facilitating environment.² Therefore, empowerment can be defined a process in which patients understand their role, are given the knowledge and skills by their healthcare provider to perform a task in an environment that

recognizes community and cultural differences and encourages patients' active participation. In this scenario, the self-management and self-assessment are becoming more and more relevant, especially in chronic disease which requires long-term treatments and regular controls. It is true that many injectable drugs are self-administered since long time (eg, insulin, low-molecular-weight heparins). This has been now proposed and successfully used also for biological agents, as in the case of inflammatory bowel diseases³ or rheumatological diseases.⁴⁻⁶ The recent introduction of biological agents for severe asthma, anti-IgE and IL-5 antagonists has introduced the problem of self-administration also in this disease. There are nowadays few studies assessing the efficacy of the at-home self-administration for Omalizumab⁷ and Benralizumab⁸ that are both subcutaneous drugs. The studies substantially demonstrated the effectiveness of this approach and the related patient's satisfaction. This is mainly due to the convenience for the subjects who do not have to undergo regular visits to the clinic.

On the contrary, despite the self-administration seems to be an attractive approach, some concerns are emerging, which will be probably better clarified only in real life. Among them: (a) How can the real adherence (self-administration) and timing be ascertained? (b) How can the correct technique of self-injection be evaluated? (c) the problem of the appropriate storage of the drug at home; (d) the prompt evaluation and management of any possible adverse event can be done only under direct medical supervision. The last, but probably the most important aspect to be considered, is that the administration of biologicals in the dedicated Severe Asthma Centres allows a regular contact with the patient, a visit-by-visit clinical/functional evaluation and the use, if needed of specific diagnostic tests (eg, spirometry, exhaled nitric oxide, blood cell differential count). Moreover, there is no bioassay method to measure the plasma concentration of the asthma biologicals (at variance with other drugs such as antiepileptic, antidepressants or digoxin) that would be an objective methods to assess the correct and regular intake of drugs. A partial solution to these problems could be the use of intelligent devices, as already in use for inhaled therapies,⁹ or the use of dedicated apps for smartphones with dosing reminders and recording instruments for symptoms and quality of life.

The aforementioned are only speculative considerations that would need evidence-based data, for instance by direct comparisons between the two regimens (namely, auto-injection and doctor-supervised) or in the real-life setting, with a special attention to adherence and safety. All those aspects must be carefully balanced before an extensive use of self-injection for severe asthma can be recommended.

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DISCLAIMER

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